

Department of Energy
Carlsbad Field Office
P. O. Box 3090
Carlsbad, New Mexico 88221
10 APR 2003

ENTERED



Mr. James Bearzi, Chief
Hazardous Waste Bureau
New Mexico Environment Department
2905 Rodeo Park Drive East, Bldg. 1
Santa Fe, New Mexico 87505-6303

Subject: Proposed Rental Real-Time-Radiography Unit at Los Alamos National Laboratory

Dear Mr. Bearzi:

The Los Alamos National Laboratory (LANL) is proposing to deploy a rental real time radiography (RTR) unit to augment their current RTR capabilities and increase throughput. Currently, there is one RTR unit at LANL being used for characterization of transuranic (TRU) waste for shipment to the Waste Isolation Pilot Plant (WIPP). The existing RTR unit has been audited by the Carlsbad Field Office (CBFO) and approved by the New Mexico Environment Department (NMED) though the final audit report process described in Section B6 of the WIPP Waste Analysis Plan (WAP).

A report documenting the similarities and differences between the existing approved RTR unit and the proposed rental RTR unit has been prepared by LANL and is enclosed to this letter. The CBFO has reviewed this "gap analysis" and has determined that the use of this rental RTR unit can be approved using the provisions for changes to generator plans or procedures described in the WAP. Section B3-15 of the WAP allows non-administrative changes that could impact data quality objectives to be implemented with prior approval of the Permittees. The CBFO does not believe that implementing an additional RTR unit at the LANL requires a final audit report be approved by NMED prior to shipping waste characterized with this unit to the WIPP. This is because the rental RTR unit is functionally identical to the existing approved unit.

The CBFO will review the changes to LANL's procedures required to begin use of the rental RTR unit. If these changes are approved, the CBFO will notify the NMED of the approval in the monthly procedure change summary. The CBFO will then perform a surveillance of the rental RTR unit. This surveillance is expected to occur in early June 2003. Representatives from the NMED will be invited to observe the surveillance.

If you have any questions, please contact me at (505) 234-7357.

Sincerely,

Kerry Watson
Kerry Watson
CBFO Assistant Manager
Office of National TRU Program

Enclosure

cc: w/enclosure:
W. Ledford, CTAC
P. Roush, WTS
CBFO M&RC



**GAP ANALYSIS OF THE LOS ALAMOS
NATIONAL LABORATORY (LANL)
EXISTING MOBILE REAL TIME
RADIOGRAPHY SYSTEM AND THE
PROPOSED RENTAL REAL TIME
RADIOGRAPHY SYSTEM**

Prepared By:

Los Alamos National Laboratory

Risk Reduction Environmental Stewardship (RRES) Division

Certification (CE) Group

April 1, 2003

Introduction

In order to certify and ship TRU waste to the Waste Isolation Pilot Plant (WIPP), the waste must be fully characterized in accordance with the WIPP Hazardous Waste Facility Permit, as regulated under the Resource Conservation and Recovery Act (RCRA) by the New Mexico Environment Department (NMED). This characterization requires the use of radiography to verify waste matrix code, estimate waste material parameter weights, verify waste stream description, and verify the absence of prohibited items.

Los Alamos National Laboratory (LANL) currently uses a real-time radiography (RTR) system that has been audited and certified for use by the Carlsbad Field Office (CBFO), under the observation of NMED. LANL is in the process of installing a rental RTR unit to augment existing RTR system throughput. This document provides analysis to demonstrate equivalency in RTR characterization capabilities, such that the current LANL certification status is not compromised through the use of proposed mobile RTR unit. By demonstrating equivalency in examination capability, a formal equipment certification audit by CBFO and NMED would not be required prior to operating the proposed RTR unit to characterize and certify TRU waste for shipment to WIPP.

Requirements

The WIPP Hazardous Waste Facility Permit, Attachment B6, Section B6-3 states in part:

"Audits will be conducted at least annually for each site involved in the waste characterization program. Both announced and unannounced audits will address the following:

- *Results of previous audits*
- *Changes in programs or operations*
- *New programs or activities being implemented*
- *Changes in key personnel"*

Summary

Attached is a detailed analysis of the x-ray and imaging equipment specifications and operating criteria applicable to the existing and proposed RTR systems. These equipment and operating criteria directly impact RTR examination data quality and recording activities. Although the operator control systems used to operate the two units differ, the resulting input and output signals are not affected by such differences.

Software differences for the two RTR units are minimal. The rental RTR unit will use Concert RTR Software that has been extracted from the Idaho National Engineering and Environmental Laboratory (INEEL) TRIPS system for use as stand-alone RTR operating software. The Concert RTR Software is unchanged from the TRIPS RTR software package used at INEEL, except for minor, nonfunctional changes to accommodate differences in field size and naming convention. Modifications to the INEEL TRIPS RTR software to produce the Concert RTR Software for LANL were made under a WIPP WAP compliant software QA process at INEEL.

A new procedure (DTP-1.2-077) will be put in place when the rental RTR unit is brought online to detail the use of the Concert RTR Software system. The new procedure will be identical to DTP-1.2-008 for operating the existing RTR system with the following change:

In DTP-1.2-077 the RTR procedure for the rental RTR unit will call out that the weighing of drums is a separate event. The operator will open a separate screen and capture the weighing of the drum and then open a separate screen to capture the RTR event.

Table 1 - Comparison of Rental and Existing RTR Imaging Equipment and Operating Criteria			
Imaging Equipment and Operating Criteria	Existing RTR	Rental RTR	Gap Analysis
X-ray Tubehead	<ul style="list-style-type: none"> Comet Model MB-450/1 Power supply: 450 kV dc max operating voltage at 10 mA. 	<ul style="list-style-type: none"> Comet Model MXR-451 Power supply: 450 kV dc max operating voltage at 10 mA. Minimum 450 kV and 10 mA on a 5.5 mm focal spot, and 450 kV and 2 mA on a 2.5 mm focal spot. 	These units are equivalent in performance and operation.
Image Intensifier	VJ Technologies 12-in. quad-field image intensifier.	VJ Technologies 16-in. quad-field image intensifier with four magnification modes at 16 in., 12 in., 9 in., and 4 in.	These units are equivalent in performance and operation.
CCD Camera	VJ -111 high resolution with zoom capability.	VJ MV-6 high resolution with zoom capability.	These units are equivalent in performance and operation.
System Resolution	16 line pairs/in. minimum	16 line pairs/in. minimum	Identical
Video Output	MPEG-1:SIF format	MPEG-1:SIF format	Identical
Digital Video Encoding	V.J.Technologies Model VJ-IP3002, NTSC. (RS-170 monochrome video)	V.J.Technologies Model VJ-IP3002, NTSC. (RS-170 monochrome video)	Identical
User Interface	RTR Field software interface	Concert RTR Software	Data capture is equivalent.

Table 1 - Comparison of Rental and Existing RTR Imaging Equipment and Operating Criteria			
Imaging Equipment and Operating Criteria	Existing RTR	Rental RTR	Gap Analysis
Operators, Training/Qualification	<ul style="list-style-type: none"> • Training implemented by QP-1.1-035 with position requirements documented on job analysis forms • RTR operations conducted under DTP-1.2-008. 	<ul style="list-style-type: none"> • Training implemented by QP-1.1-035 with position requirements documented on job analysis forms • RTR operations conducted under DTP-1.2-077 	<ul style="list-style-type: none"> • Same operators will be used to operate both systems • Minor differences in training and qualifications based on differences in loading/unloading operations and imaging controls. • The same test drums are used to qualify operators on both systems.
Operating Procedure	RTR operations conducted under DTP-1.2-008.	RTR operations conducted under DTP-1.2-077.	See comparison of operating procedure examination methods/parameters above
Data Validation	RTR operations conducted under DTP-1.2-008.	RTR operations conducted under DTP-1.2-077.	Data validation requirements and processes are identical.
Quality Control Checks	Image test pattern check	Image test pattern check	Identical

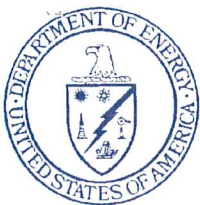
Table 2 - Comparison of Rental and Existing RTR Operating Procedure Examination Methods/Parameters			
Method/Parameter	DTP-1.2-008	DTP-1.2-077	Gap Analysis
Verbal Recording	Section 6.6: Verbally record all comments on video tape: 90-mil poly liner, liner puncture, plastic bags, liquids, pressurized containers, lead, layers of confinement, lighting ballasts, content code, sharp objects	Section 6.6: Verbally record all comments on optical disk: 90-mil poly liner, liner puncture, plastic bags, liquids, pressurized containers, lead, layers of confinement, lighting ballasts, content code, sharp objects	Identical with exception of controls and use of video tape versus optical disk.
Data Entry	Section 6.6: Use RTR Field software	Section 6.6: Complete Concert RTR Software Questionnaire	WIPP WAP required data are captured in both systems.
Replicate Scan	Section 6.61: Perform replicate scan once per testing batch	Section 6.6: Perform replicate scan once per testing batch	Identical with exception of controls

Conclusion

Based on the analysis above, there are no appreciable differences in the x-ray and imaging equipment and operational criteria between the existing and the proposed rental RTR equipment. Both systems are functionally equivalent in their ability to characterize and certify transuranic waste to the data quality objectives and quality assurance objectives defined in the WIPP Hazardous Waste Facility Permit. Although differences in peripheral control systems and loading/unloading operations require procedural variations, the actual drum characterization capabilities and examination processes remain the same. Since the proposed rental RTR does not introduce new or changed programs, operations, or activities directly related to the characterization of TRU waste, it is concluded the proposed rental RTR does not impact LANL TRU waste certification capability.

References

1. Hazardous Waste Facility Permit, Waste Isolation Pilot Plant, EPA No. NM4890139088, February 1, 2001
2. TWCP-DTP-1.2-008, Performing Non-Destructive Testing using the Mobile Real Time Radiography System
3. TWCP-QP-1.1-035, Written Practices for the Qualification of TWCP Nondestructive Examination Personnel
4. TWCP-DTP-1.2-077, Performing Non-Destructive Testing using the Mobile Real Time Radiography System II



Department of Energy

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April 10, 2003



Mr. James Bearzi, Chief
Hazardous Waste Bureau
New Mexico Environment Department
2905 Rodeo Park Drive East, Bldg. 1
Santa Fe, New Mexico 87505-6303

Subject: Use of the Airtight Seal for Sampling of Headspace Gas from Pipe Overpack Components at the Hanford Site

Dear Mr. Bearzi:

The Hanford Site is currently approved by the Carlsbad Field Office (CBFO) and the New Mexico Environment Department (NMED) to perform direct canister headspace gas sampling as described in Section B1-1a(5) of the Waste Isolation Pilot Plant (WIPP) Waste Analysis Plan (WAP). The Hanford site has been performing headspace gas sampling by inserting a needle through the drum filter. Hanford is proposing to modify their existing headspace gas sampling procedure, DO-080-009 - *Obtain Headspace Gas Samples of TRU Waste Containers*, to allow the use of the airtight seal as described in Section B1-1a(5) of the WAP. This will facilitate the sampling of pipe overpack components (POCs).

The CBFO believes that this change can be approved using the provisions for changes to generator plans or procedures described in the WAP. Section B3-15 of the WAP allows non-administrative changes that could impact data quality objectives to be implemented with prior approval of the Permittees.

The CBFO will review the changes to Hanford's procedures required to begin use of the airtight seal. When these changes are approved, the CBFO will notify the NMED of the approval in the monthly procedure change summary. The CBFO will then perform a surveillance of the airtight seal method at Hanford. This surveillance will occur on April 29, 2003. Representatives from the NMED will be invited to observe the surveillance.

If you have any questions, please contact me at (505) 234-7357.

Sincerely,

Kerry W. Watson
CBFO Assistant Manager
Office of National TRU Program

Mr. James Bearzi

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April 10, 2003

cc:

P. Roush, WTS

W. Ledford, CTAC

CBFO QA File

CBFO M&RC